

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/608,907
Applicant: Sommadossi *et al.*
Filed: June 27, 2003
TC/A.AU.: Unassigned
Examiner: Unassigned

Confirmation No.: 2201

Docket No.: 06171.105034 IDX 1018
Customer No.: 20786
Title: Modified 2' and 3'-Nucleoside Prodrugs for Treating Flaviviridae Infections

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

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Respectfully submitted,

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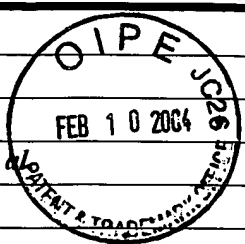
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Application Number		10/608,907			
Filing Date		June 27, 2003			
First Named Inventor		Sommadosi et al.			
Group Art Unit		Unassigned			
Examiner Name		Unassigned			
Attorney Docket Number		06171.105034 IDX 1018			
Sheet	1	of	7		

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U.S. PATENT DOCUMENTS							
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		Number	Kind Code (if known)				
	AA	3,798,209		Wilkowski, <i>et al.</i>	03-19-1974		
	AB	RE29,835		Witkowski <i>et al.</i>	11-14-1978		
	AC	4,522,811		Eppstein <i>et al.</i>	06-11-1985		
	AD	4,957,924		Beauchamp	09-18-1990		
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		Office ³	Number	Kind Code ² (if known)				
	AQ	DE	3,512,781	A1	Soc. Nat. Elf Aquitaine	10-17-1985		
	AR	EP	0,180,276	B1	Stamicarbon B.V.	12-19-1988		
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	AV	WO	90/00555	A1	Vical Inc.	01-25-1990		
	AW	WO	91/16920	A1	Vical Inc.	11-14-1991		

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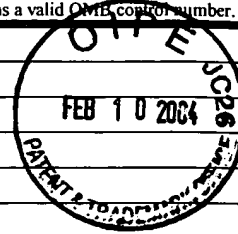
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				Attorney Docket Number	06171.105034 IDX 1018
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		Office ³	Number	Kind Code ² (if known)				
	BA	WO	91/18914	A1	Vical Inc.	12-12-1991		
	BB	WO	91/19721	A1	Glazier	12-26-1991		
	BC	WO	93/00910	A1	Vical Inc.	01-21-1993		
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	BE	WO	96/15132	A1	Regents of the Univ. of California	05-23-1996		
	BF	WO	99/15194	A1	Schering Corporation	04-01-1999		
	BG	WO	99/43691	A1	Emory; U. Georgia Res. Found.	09-02-1999		
	BH	WO	99/45016	A2	Metabasis Therapeutics Inc.	09-10-1999		
	BI	WO	99/59621	A1	Schering Corporation	11-25-1999		
	BJ	WO	99/64016	A1	Hoffman-La Roche AG	12-16-1999		
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	BL	WO	00/37110	A2&3	Schering Corporation	06-29-2000		
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	BT	WO	01/90121	A2&3	Novirio (Idenix); Univ. ... Cagliari	11-29-2000		
	BU	WO	01/92282	A2&3	Novirio (Idenix); Univ. ... Cagliari	06-12-2001		
	BV	WO	01/96353	A2&3	Novirio Pharm. (Idenix); C.N.R.S.	21-20-2001		
	BW	WO	02/057287	A2&3	Merck; Isis Pharmaceuticals	07-25-2002		
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	BZ	WO	02/32414	A2&3	Schering Corporation	04-25-2002		
	BAA	WO	02/32920	A2	Pharmasset	04-25-2002		
	BAB	WO	02/48165	A2&3	Pharmasset	06-20-2002		
	BAC	WO	03/024461	A1	Schering Corporation	03-27-2003		

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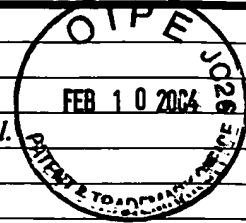
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	3	of	7		



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		Office ³	Number	Kind Code ² (if known)				
	CA	WO	04/003138	A2	Merck & Co., Isis Pharmaceutical	01-08-2004		
	CB	WO	04/007512	A2	Merck & Co., Isis Pharmaceutical	01-22-2004		
	CC	WO	04/009020	A2	Merck & Co., Isis Pharmaceutical	01-29-2004		

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁶
	CD	BAGINSKI, S. G. <i>et al.</i> , "Mechanism of action of a pestivirus antiviral compound," <i>PNAS USA</i> , 97(14): 7981-7986 (2000).	
	CE	BATTAGLIA, A.M. <i>et al.</i> , "Combination Therapy with Interferon and Ribavirin in the Treatment of Chronic Hepatitis C Infection", <i>Ann. Pharmacother</i> , 34:487-494 (2000).	
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	CI	BROWNE, M.J., <i>et al.</i> , "2',3'-didehydro-3'-deoxythymidine (d4T) in patients with AIDS or AIDS-Related Complex: A Phase I trial," <i>J. Infect. Dis.</i> , 167(1):21-29 (1993).	
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	CN	De LOMBAERT, S., <i>et al.</i> , "N-Phosphonomethyl dipeptides and their phosphonate prodrugs, a new generation of neutral endopeptidase (NEP, EC 3.4.24.11) inhibitors," <i>J. Med. Chem.</i> , 37:498-511 (1994).	

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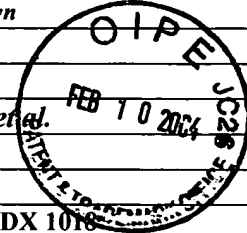
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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁶
	DA	DORNSIFE, R.E., <i>et al.</i> , "In vitro potency of inhibition by antiviral drugs of hematopoietic progenitor colony formation correlates with exposure at hemotoxic levels in Human Immunodeficiency Virus-positive humans," <i>Antimicrob. Agents Chemother.</i> , 40(2):514-519 (1996).	
	DB	DYMOCK, B.W., <i>et al.</i> , "Review: Novel approaches to the treatment of hepatitis C virus infection," <i>Antiviral Chemistry & Chemotherapy</i> , 11(2):79-95 (2000).	
	DC	ELDRUP <i>et al.</i> (Oral Session V, Hepatitis C Virus, Flaviviridae; 16 th International Conference on Antiviral Research (April 27, 2003, Savannah, Ga.).	
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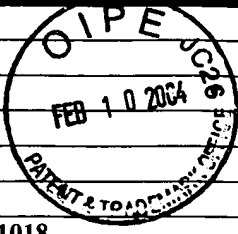
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	EA	HOSTETLER, K. Y., et al., "Greatly enhanced inhibition of Human Immunodeficiency Virus Type I replication in CEM and HT4-6C cells by 3'-deoxythymidine diphosphate dimyristoylglycerol, a lipid prodrug of 3'-deoxythymidine," <i>Antimicrob. Agents Chemother.</i> , 36:2025-2029 (September 1992).	
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	EH	KURTZBERG J., et al., "Differential toxicity of carbovir and AZT to human bone marrow hematopoietic progenitor cells in vitro," <i>Exp. Hematol.</i> , 18(10):1094-1096 (1990).	
	EI	LEONARD, N. J., et al., "5-Amino-5-deoxyribose derivatives. Synthesis and use in the preparation of "reversed" nucleosides" <i>J. Heterocycl. Chem.</i> , 3:485-489 (December 1966).	
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	EK	LEWIS W., et al., "Zidovudine induces molecular, biochemical, and ultrastructural changes in rat skeletal muscle mitochondria," <i>J. Clin. Invest.</i> , 89(4):1354-1360 (1992).	
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	EN	LOHMANN V., et al., "Biochemical and kinetic analyses of NS5B RNA-dependent RNA polymerase of the Hepatitis C virus," <i>Virology</i> , 249, 108-118 (1998).	
	EO	LUH, T.-Y., et al., "A convenient method for the selective esterification of amino-alcohols," <i>Synthetic Communications</i> , 8(5):327-333 (1978).	

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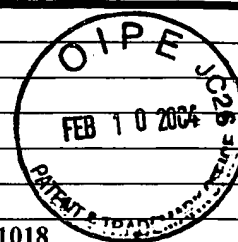
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	10/608,907
				Filing Date	June 27, 2003
				First Named Inventor	Sommadossi <i>et al.</i>
				Group Art Unit	Unassigned
				Examiner Name	Unassigned
	6	of	7	Attorney Docket Number	06171.105034 IDX 1018



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	FA	MCCORMICK, J., <i>et al.</i> , "Structure and total synthesis of HF-7, a neuroactive glyconucleoside disulfate from the funnel-web spider <i>Hololena curta</i> ," <i>J. Am. Chem. Soc.</i> , 121(24), 5661-5664 (1999).	
	FB	MCKENZIE, R., <i>et al.</i> , "Hepatic failure and lactic acidosis due to fialuridine (FIAU), an investigational nucleoside analogue for chronic hepatitis B," <i>N. Engl. J. Med.</i> , 333(17):1099-1105 (1995).	
	FC	MEDINA, D. J., <i>et al.</i> , "Comparison of mitochondrial morphology, mitochondrial DNA content, and cell viability in cultured cells treated with three anti-Human Immunodeficiency Virus dideoxynucleosides," <i>Antimicrob. Agents Chemother.</i> , 38(8):1824-8 (1994).	
	FD	MEIER, C., <i>et al.</i> , "Cyclic saligenyl phosphotriesters of 2',3'-dideoxy-2',3'-didehydrothymidine (d4T) – A new pro-nucleic approach," <i>Bioorganic & Med. Chem. Letters</i> 7(2):99-104 (1997).	
	FE	MEYER, R.B., Jr., <i>et al.</i> , "2'-O-Acyl-6-thioinosine cyclic 3',5'-phosphates as prodrugs of thioinosinic acid," <i>J. Med. Chem.</i> 22: 811-815 (1979).	
	FF	NEIDLEIN, R., <i>et al.</i> , "Mild preparation of 1-benzyluloxyminoalkylphosphonic dichlorides: Application to the synthesis of cyclic phosphonic diesters and cyclic monoester amides," <i>Heterocycles</i> 35:1185-1203 (1993).	
	FG	NUTT, R.F., <i>et al.</i> , "Branched-chain sugar nucleosides. III. 3'-C-methyladenine," <i>J. Org. Chem.</i> , 33:1789-1795 (1968).	
	FH	OLSEN, <i>et al.</i> (Oral Session V, Hepatitis C Virus, Flaviviridae; 16 th International Conference on Antiviral Research (April 27, 2003, Savannah, Ga.) p A76).	
	FI	PAN-ZHOU, X-R., <i>et al.</i> , "Differential effects of antiretroviral nucleoside analogs on mitochondrial function in HepG2 cells," <i>Antimicrob. Agents Chemother.</i> 44:496-503 (2000).	
	FJ	PIANTADOSI, C., <i>et al.</i> , "Synthesis and evaluation of novel ether lipid nucleoside conjugates for anti-HIV-1 activity," <i>J. Med. Chem.</i> 34:1408-1414 (1991).	
	FK	RICHMAN, D.D., <i>et al.</i> , "The toxicity of azidothymidine (AZT) in the treatment of patients with AIDS and AIDS-Related Complex," <i>N. Engl. J. Med.</i> , 317(4):192-197 (1987).	
	FL	SOMMADOSSI J-P., <i>et al.</i> , "Comparison of cytotoxicity of the (-)- and (+)- enantiomer of 2',3'-dideoxy-3'-thiacytidine in normal human bone marrow progenitor cells," <i>Biochemical Pharmacology</i> 44(10):1921-1925 (1992).	
	FM	SOMMADOSSI J.-P., <i>et al.</i> , "Toxicity of 3'-azido-3'-deoxythymidine and 9-(1,3-dihydroxy-2-propoxymethyl)guanine for normal human hematopoietic progenitor cells in vitro," <i>Antimicrobial Agents and Chemotherapy</i> , 31:452-454 (1987).	
	FN	STARRETT, J.E.Jr., <i>et al.</i> , "Synthesis, oral bioavailability determination, and <i>in vitro</i> evaluation of prodrugs of the antiviral agents 9-(2-(phosphonomethoxy)ethyl)adenine (PMEA)," <i>J. Med. Chem.</i> 37: 1857-1864 (1994).	

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	GA	WEINBERG, R.S., <i>et al.</i> , "Effect of antiviral drugs and hematopoietic growth factors on <i>in vitro</i> erythropoiesis," <i>Mt. Sinai J. Med.</i> 1998;65(1):5-13.	
	GB	YARCHOAN, R., <i>et al.</i> "Long-term toxicity / activity profile of 2',3'-dideoxyinosine in AIDS or AIDS-related complex," <i>The Lancet</i> , 336(8714):526-529 (1990).	
	GC	YOSHIDA Y, <i>et al.</i> , "Reversal of azidothymidine-induced bone marrow suppression by 2',3'-dideoxythymidine as studied by hemopoietic clonal culture," <i>AIDS Res. Hum. Retroviruses</i> , 6(7):929-932 (1990).	
	GD	ZON, G., "Cyclophosphamide Analogues," Chapter 4 in <i>Progress in Medicinal Chemistry</i> , Vol. 19, G.P. Ellis and G.B. West, Eds., pp. 205-246 (1982).	

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